

File

State of California
The Resources Agency
DEPARTMENT OF WATER RESOURCES
DIVISION OF SAFETY OF DAMS

INSPECTION OF DAM AND RESERVOIR IN CERTIFIED STATUS

Name of dam Oroville Dam Dam No. 1-48 County Butte
Type of dam Earthfill Type of Spillway Gated Concrete Weir and Chute
Water is 2.28 feet above spillway crest and 110.48 feet below dam crest.
W.S. 816.08
Weather Conditions Overcast and cool
Contacts made Alex Samaan and Lee August OFD; David Panec, Vincent Homdus, Dan Garcia, O&M
Reason for inspection Periodic Evaluation

Important Observations, Recommendations or Actions Taken

Monitor the cracks in the right gallery at stations 8+83 and 9+02. Remove the calcite deposits from the carrier pipes and junction boxes in the left gallery. Make necessary repairs to the pipes, etc. Clear the floor drains in the tunnel beyond Terminal S. Clean House U and control the rodent activity.

Clear the vegetation for the seepage area at the upstream side of Bidwell Bar Saddle Dam. This seepage should be monitored regularly when Oroville Reservoir is low.

Conclusions

From the known information and the visual inspection, the dam, reservoir, and the appurtenances are judged satisfactory for continued use, pending completion of radial gate repairs.

Item No.*	Item Name and Observation and Comment
A1-A4	<p><u>Dam</u> - The embankment appeared to be in good condition. The crest road was well maintained. No signs of instability or objectionable rodent activity were observed.</p> <p>The downstream embankment had a thick grass cover. The well-documented damp area near the left abutment should be cleared of grass and dead weeds to allow closer monitoring of the seepage. The reservoir was just above the 815 berm. The exposed rock shell remains in good condition.</p> <p>The left and right grout galleries, Terminal S, and the emergency exit tunnel were inspected. The tunnel beyond Terminal S was traversed to the plug.</p> <p>The first seepage was observed on the stairs near station 9+26 in the right gallery. Seepage increased steadily to about 12 gpm at the sump level. The old transverse cracks at station 8+83 and 9+02 are no longer measured. However, I requested that they be monitored, since they appeared to be somewhat wider than I remembered.</p> <p>WPennington 2/2/03</p>
Typed by <u>wmp</u>	Use Field Sheet Standard
Date <u>2/2/04</u>	Numbers and Items
cc for <u>Book/Owner</u>	(See Reverse Side)
	Inspected by <u>WPennington</u>
	Date of Inspection <u>1/20/04</u>
	Date of Report <u>2/2/04</u>
	Photos taken? Yes <u> </u> No <u>X</u>
	Sheet <u>1</u> of <u>4</u> Sheets

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INSPECTION OF DAM AND RESERVOIR IN CERTIFIED STATUS

Name of Dam Oroville Dam No 1-48

Date of Inspection 1/20/04

Observations and Comments (Continued)

Item No.*	Item Name and Observation and Comment
6,8,10	<p><u>Dam cont.</u> - The left gallery was traversed from the sump area to the emergency exit tunnel, and then from the top of the gallery to the emergency exit tunnel. Nothing unexpected was observed. Total seepage was nearly the same as the right side, about 11 gpm. The field office should continue the program to remove the accumulated deposits from the floor drains, and the steps. The localized heavy calcite deposits on the carrier pipes and junction boxes in the left gallery should be removed. Problem areas should be repaired. I noted that the YCC has cleaned the galleries to some extent, and swept the steps.</p> <p>The access gallery to Terminal S, and the tunnel from Terminal S to the plug were in satisfactory condition. A portion of the floor drain system in the tunnel appears to be plugged, and should be cleared.</p> <p>The tubing bundle seepage at Terminal S was normal. House T has been cleaned. House U had a smell of animal urine, and other indications of rodent activity. This activity should be controlled.</p> <p><u>Bidwell Canyon Saddle Dam, Parish Camp Saddle Dam - Oroville Reservoir</u> was well below the toe of the saddle dams. Miners Ranch reservoir was up on the toe of Bidwell Canyon Saddle Dam, as is usual.</p> <p>Both embankments remain in good condition, with no signs of instability or troublesome rodent activity. No objectionable vegetation was observed. Seepage conditions are discussed below.</p> <p><u>Palermo Tunnel</u> - The tunnel remains in satisfactory condition. Leakage was normal.</p>
	<p><u>Spillway</u> - The reservoir was about three feet up on the gates. The flood control structure and the emergency spillway were in satisfactory condition. The radial gates and mechanical equipment also appeared to be in satisfactory condition.</p> <p>The existing crack at the left wall of bay 8 was dry, and has been painted to monitor movement. This monitoring approach may not work as intended.</p> <p>Paint is used to monitor the ongoing spalling problem at the bridge abutments. Minor spalling has occurred at the right abutment since the last inspection. None has occurred at the left abutment.</p>

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INSPECTION OF DAM AND RESERVOIR IN CERTIFIED STATUS

Name of Dam Oroville

Dam No 1-48

Date of Inspection 1/20/04

Observations and Comments (Continued)

Item No.*	Item Name and Observation and Comment
14,16	<p><u>Outlet</u> - The valves and valve vault were in satisfactory condition. The valves are tested regularly, and are said to operate properly. A full travel valve test will be conducted in my presence on February 10. The guard and control valves will be tested in turn without making releases to the river.</p>
17	<p><u>Seepage</u> - Total seepage from the left and right galleries was in the range of 11 to 12 gpm at the sump. This is somewhat lower than the last inspection when the reservoir was more than 80 feet higher. The Terminal S turbidity readings remain acceptable. Total flow at the toe weir was normal.</p> <p>Miners Ranch Reservoir backs up against the toe of Bidwell Bar Saddle Dam. This situation sets up a reverse seepage path when Oroville Reservoir is low. As a result, seepage flows from the upstream foundation of the saddle dam. While seepage from this area is not new, it should be monitored visually on a regular basis. The seepage site should be kept clear of vegetation when Oroville Reservoir is low.</p> <p>The rock cleavage is nearly vertical in the grouted foundation. The vertical joints could provide a path for piping along the foundation interface.</p>
18	<p><u>Instrumentation</u> - The instrumented monitoring program is under review by O&M and will be revised following the FERC Part 12 inspection process. The 1994 Safety Review Board recommended that the Department rely on the survey monuments, seismic instrumentation, and seepage readings, and retire the remaining instruments.</p> <p>The 2003 Performance Review is scheduled for completion in March 2004. However, the December 2002 Performance Review and the last FERC Part 12 Safety Inspection Report were reviewed following the last periodic inspection in June of 2003.</p> <p><u>Hydraulic piezometers</u>: Of 56 units, only 4 or 5 are thought to be functional. These are read weekly, and follow changes in the reservoir level. These instruments should be abandoned as recommended during the May 1994 Safety Review Board.</p> <p><u>Seepage</u>: Combined internal drainage and total seepage at the toe weir have tracked the reservoir level and remain within an acceptable range.</p> <p><u>Embankment settlement and horizontal movement</u>: The recent movement data appears to be consistent with historical trends, and indicates that the dam is stable.</p>

Author/Typist WMP/wmp

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Observations and Comments (Continued)

Item No.*	Item Name and Observation and Comment
	<p><u>Instrumentation cont.</u> -</p> <p><i>Extensometers and Joint Monitoring:</i> Deformations are measured in the power house and the core block on a quarterly basis.</p> <p>Based on the available information, and the field inspection, the dam appears to be functioning normally.</p>

Author/Typist WMP/wmp Sheet 4 of 4 Sheets